

*Industrial Revolution*



**SSWH15 The student will be able to describe the impact of industrialization, the rise of nationalism, and the major characteristics of worldwide imperialism.**

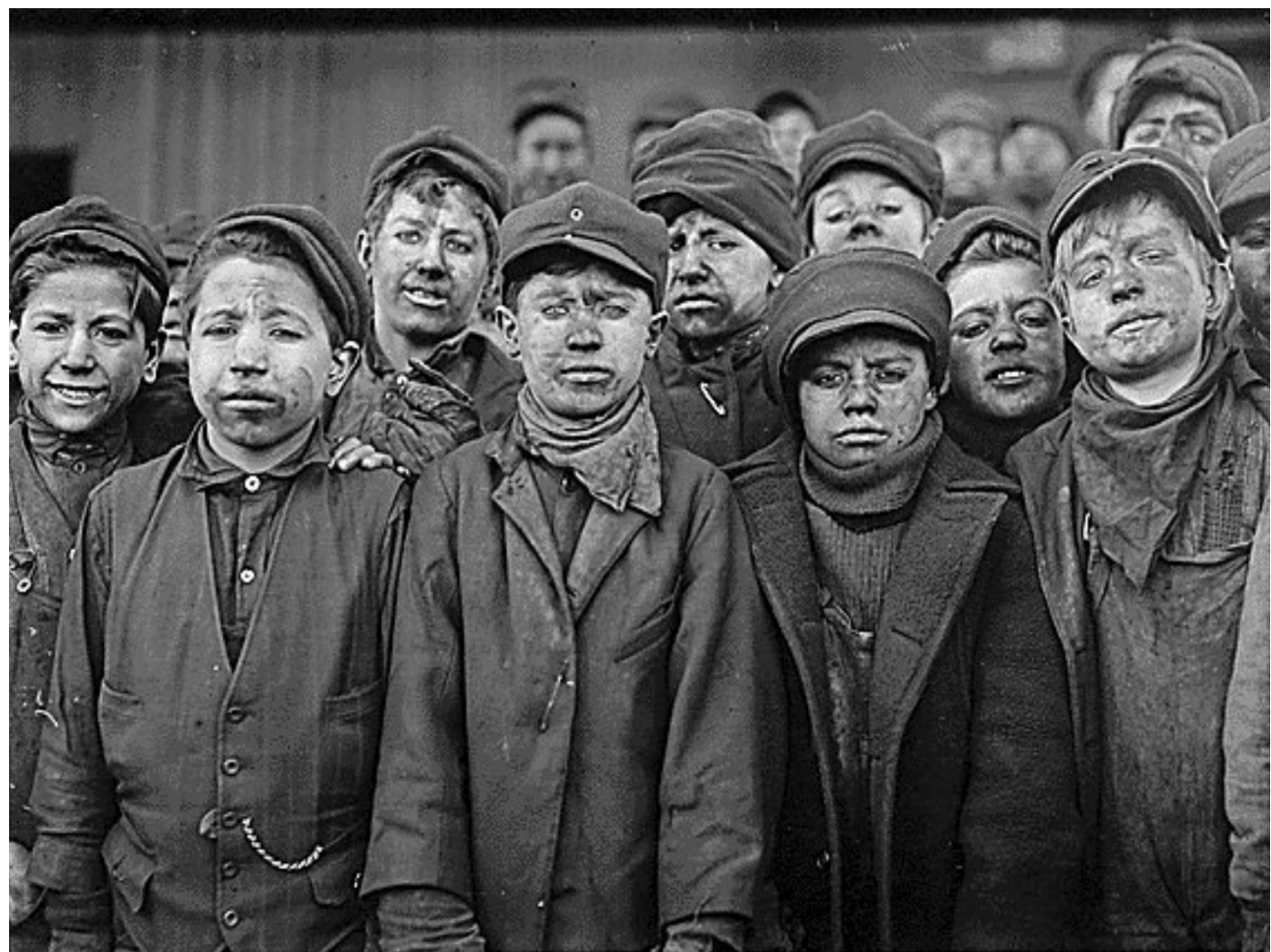
- a. Analyze the process and impact of industrialization in
  - England
  - Germany
  - Japan
- 1. The writings of Adam Smith and Karl Marx
- 2. What was the impact of urbanization and its affect on women.



**Replacing bobbins on machinery**

*Kids At Work, Russell Freedman, Scholastic, 1994. Photo by Lewis Hine*





## *Activating Words*

**ID These by providing a definition and a two sentence context summary of the term as it it deals with text.**

*Industrial Revolution*

*factors of production*

*industrialization*

*enclosures*

*Urbanization*

*Karl Marx*

*Adam Smith*

*laissez faire*

*capitalism*

*socialism*

*utilitarianism*

*communism*

*The Communist Manifesto*

**Info found in**

**Chapter 25**

**pg. 717**

*Essential Question: How did the  
Industrial Revolution begin in Britain?*

*Reason #1: Advances in Agriculture produced more food.*

### *Enclosures*

- 1. Wealthy bought up land and "enclosed it with fence and hedges"*
- 2. This forced many small farmers to the cities.*
- 3. Farmers used Tull's Seed Drill to boost production.*





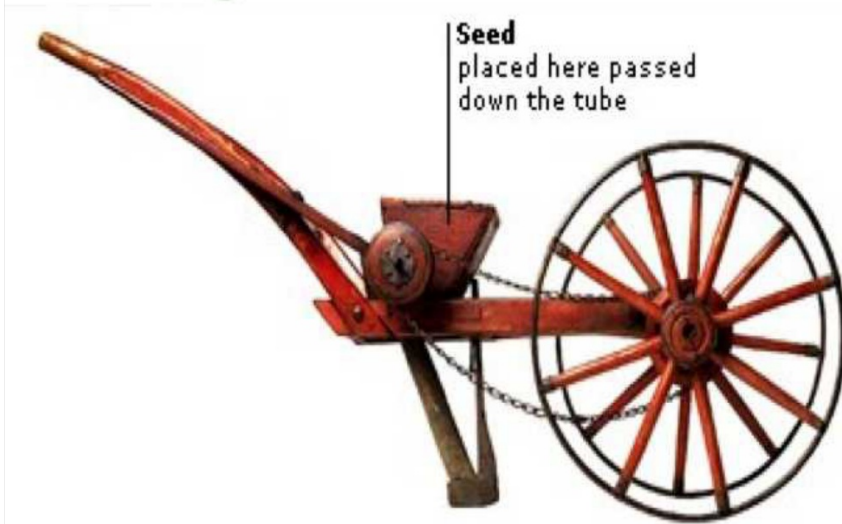
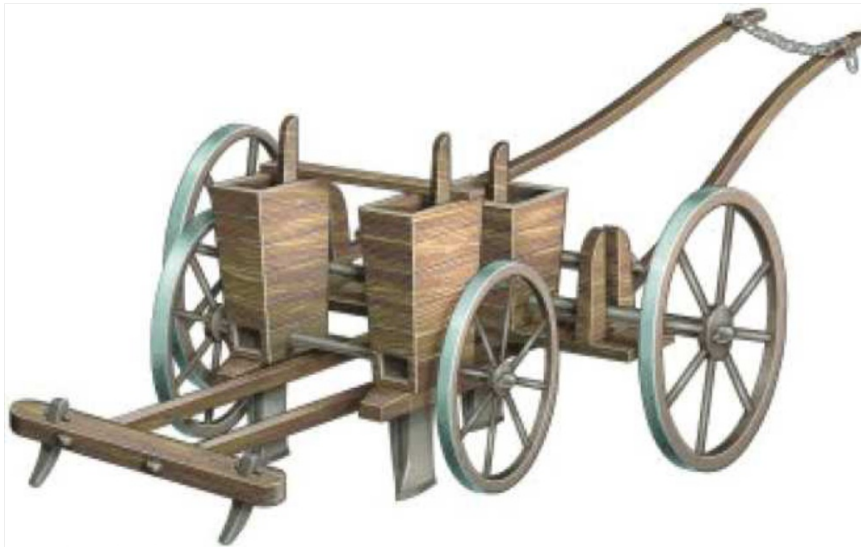
# Agricultural Revolution

## England Workers Change Jobs

- **Only 60% of Workers Involved in Food Production.**
- **Proportion Declined Steadily To About 36% at the Beginning Of The 19<sup>th</sup> Century**
- **To About 22% In The Mid-19<sup>th</sup> Century.**



## Jethro Tull and The Seed Drill



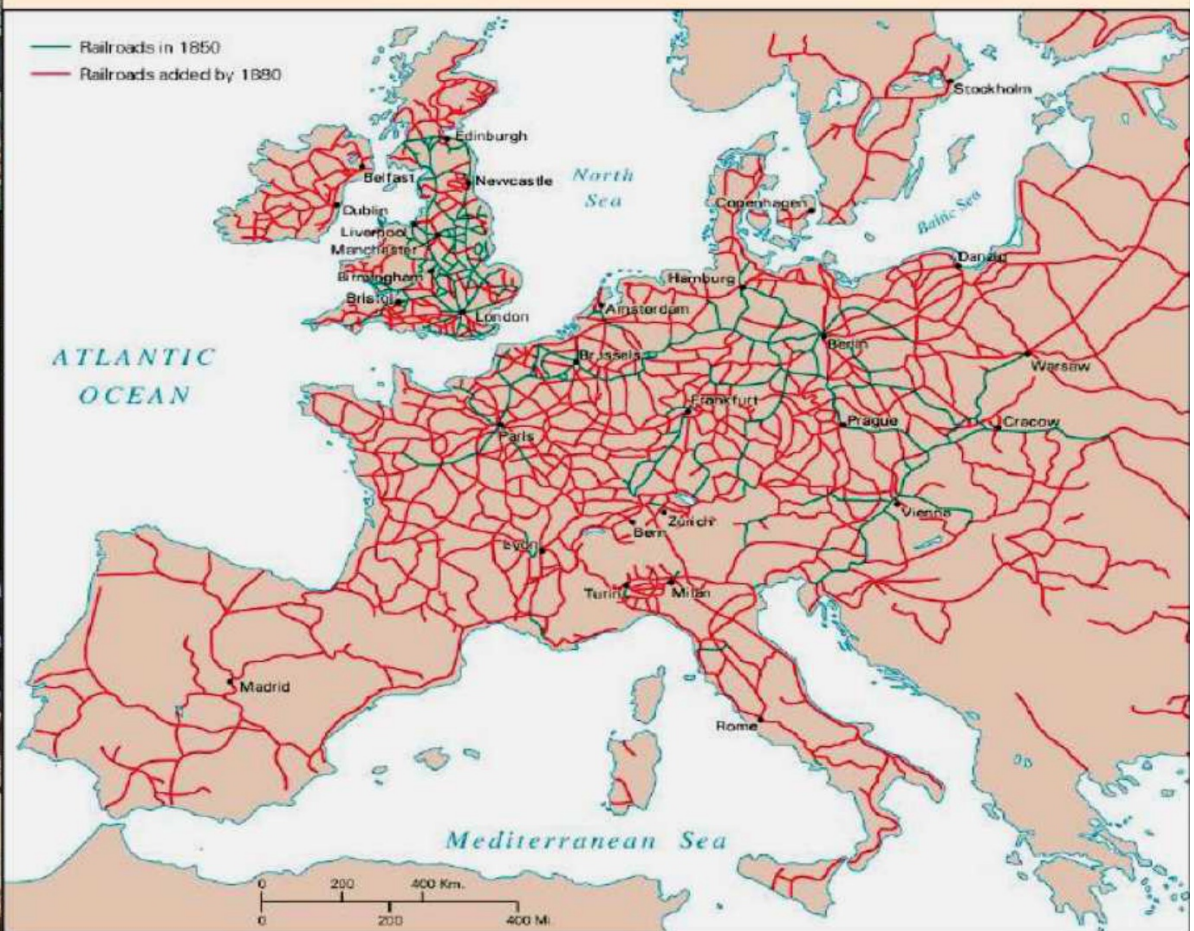
*Reason #2: England had an abundance of natural resources*

- 1. Water Power and coal to fuel new machines*
- 2. Iron ore to construct machines.*
- 3. Rivers for inland transportation*
- 4. Harbors for merchant ships*

*iron ore*



# Railroads on the Continent



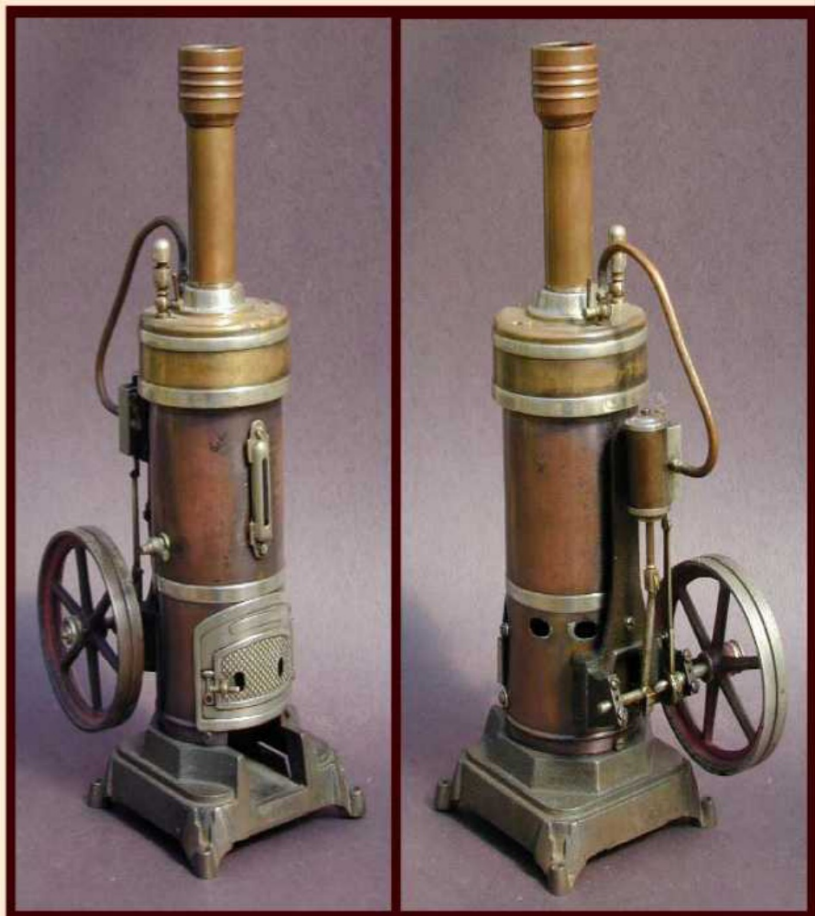
# Energy and Transportation

- Old Way- **Animal Power and Plant Burning Old Source Of Power For Factories= Deforestation**
- New Way- **Water Emerged As Energy Source Of Power For Factories**
- **Iron Industry Energy Crisis**
  - Lack of Wood
  - Coal Discovered
- **Steam Engines Invented**
- **Railroads Pop Up Everywhere**



# Steam Engine

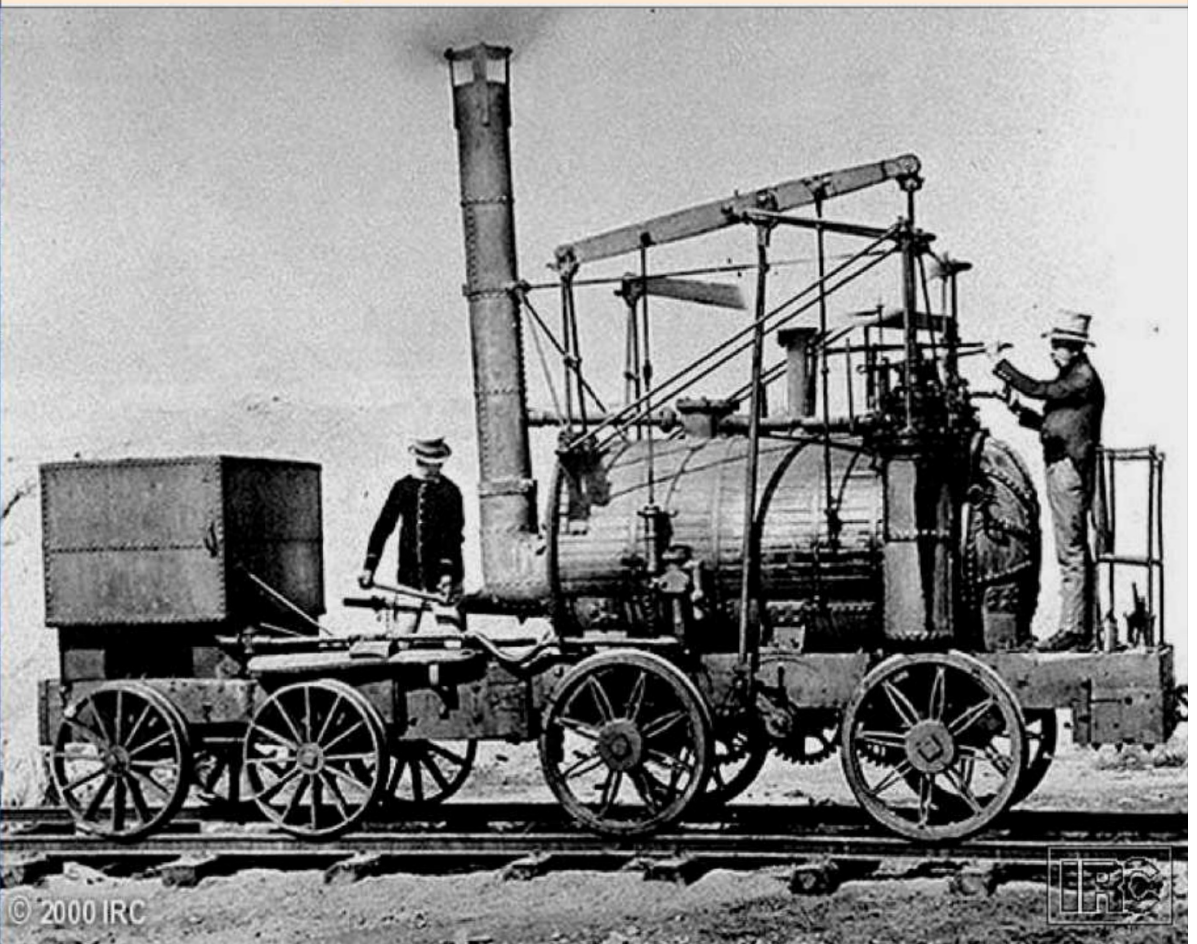
The steam engine was not just a transport device. It ran entire factories the way rivers used to.



# Steam Tractor



# An Early Steam Locomotive



# Population Density: 18c Europe





## **Impact on Manufacturing**

**The Increase in Population=**  
**More People To Buy Stuff**

**Manufacturers Can Make More**  
**Money If They Could Produce More**  
**Goods**

**This Is Difficult Because of The**  
**Way Goods Are Made At The Time.**

**How Were Goods Made Before the**  
**Industrial Revolution?**

**Supplemental Income → Cottage Industries: “Putting-Out” System**



## A Lace Maker



**Under the system, merchants supplied raw materials (cotton, for example) to families, especially women and young girls, who would make partially finished goods (yarn) or fully finished goods (cloth, shoes, etc.) for the merchant.**

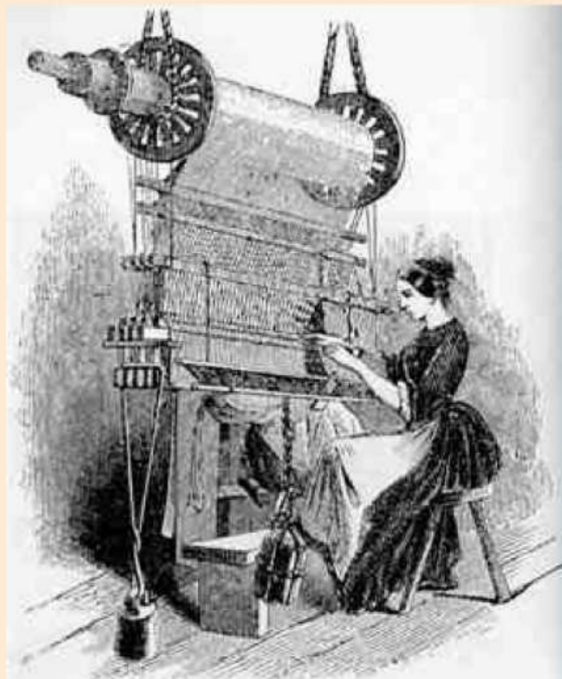




# New Inventions of the Industrial Revolution

# Textile Manufacturing

- **Textiles= Cloth-Making**  
– **4-5 Spinners Per Weaver**



Flying Shuttle

# Manufacturing Textiles

- Cotton Gave Stronger Fibers
- Invention of Spinning Jenny
  - Demand for Skilled Weavers
- Mechanical Looms (Flying Shuttle)
- Jacquard Looms



# Jacquard's Loom

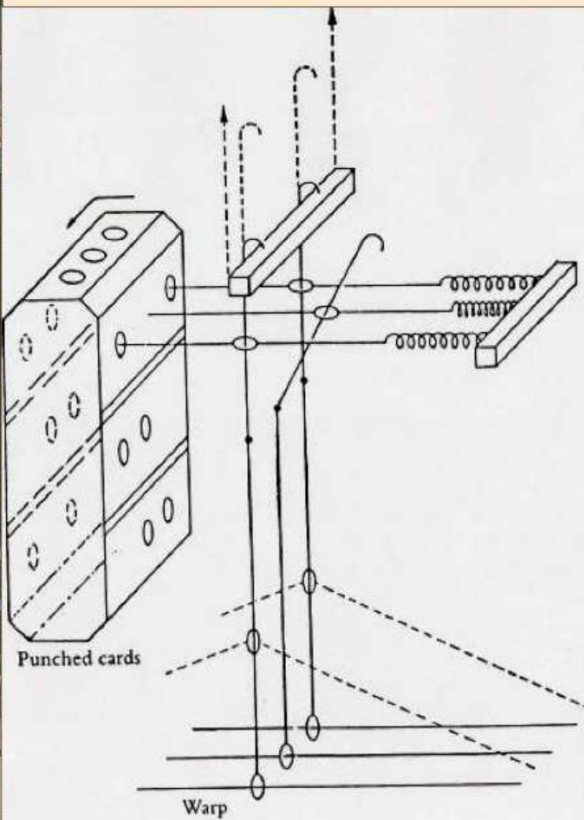


FIG 8.1 *The Jacquard action*





## **Richard Arkwright: “Pioneer of the Factory System”**



**The “Water Frame”**

# The Power Loom





# The Factory System



- × Rigid Schedule
- × 12-14 Hour Day
- × Dangerous Conditions
- × Mind-Numbing Monotony

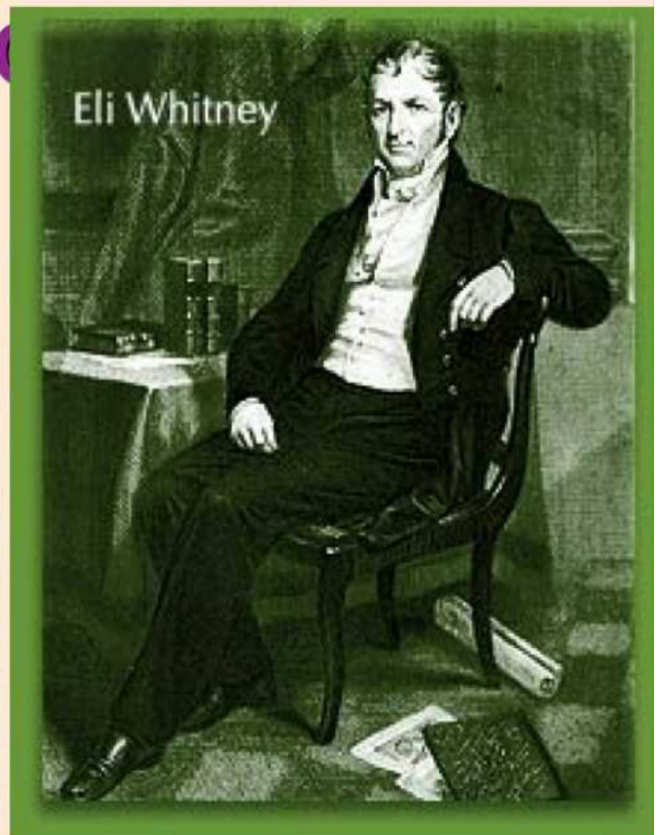


# Advantages Of Factory Production

- **Concentration Of Production in One Place [Materials, Labor]**
- **Could Be Located Near Sources of Power [Rather Than Labor Source or Markets]**
- **More Control Over Amount Of Goods Produced**
- **Requires a Lot of Capital Investment [Factory, Machines, Etc.]...This Must Be Centralized**

# Eli Whitney and the Cotton

**His Cotton Gin  
Removed the  
Seeds Out of Raw  
Cotton.**





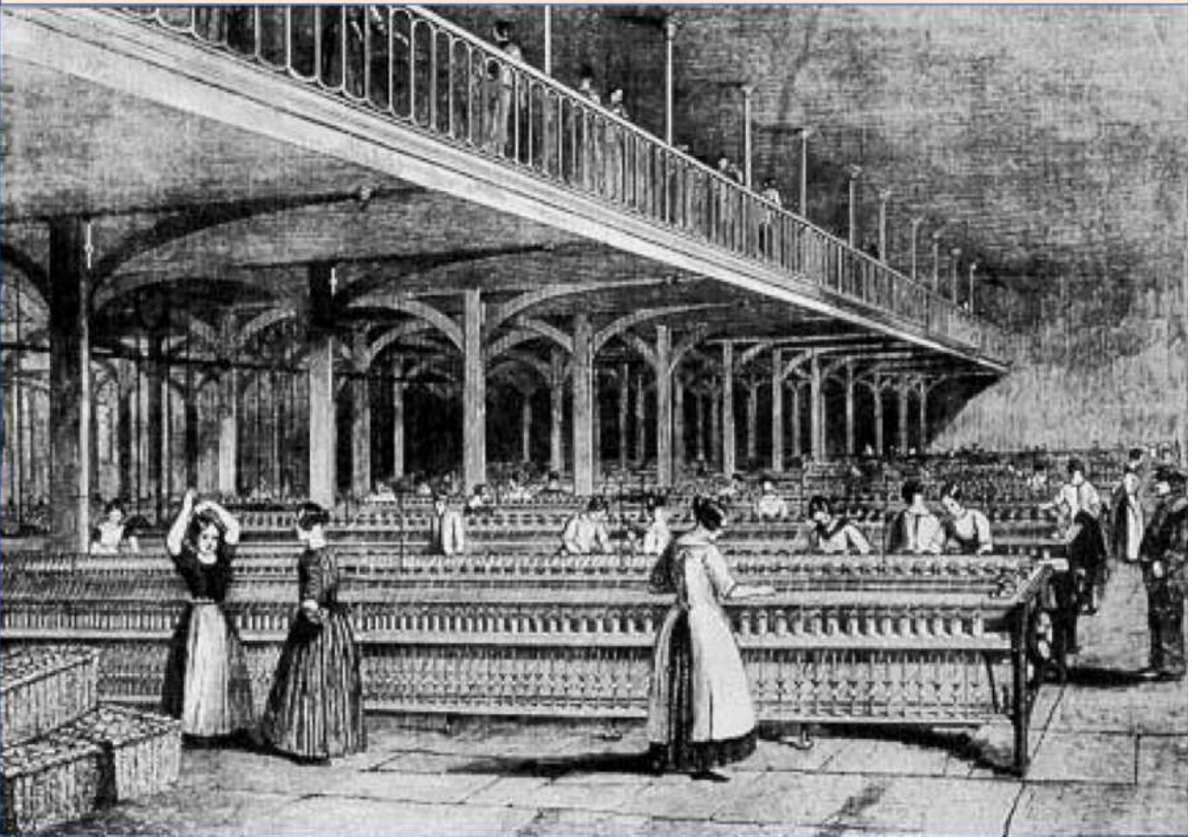


# Textile Factory Workers in England

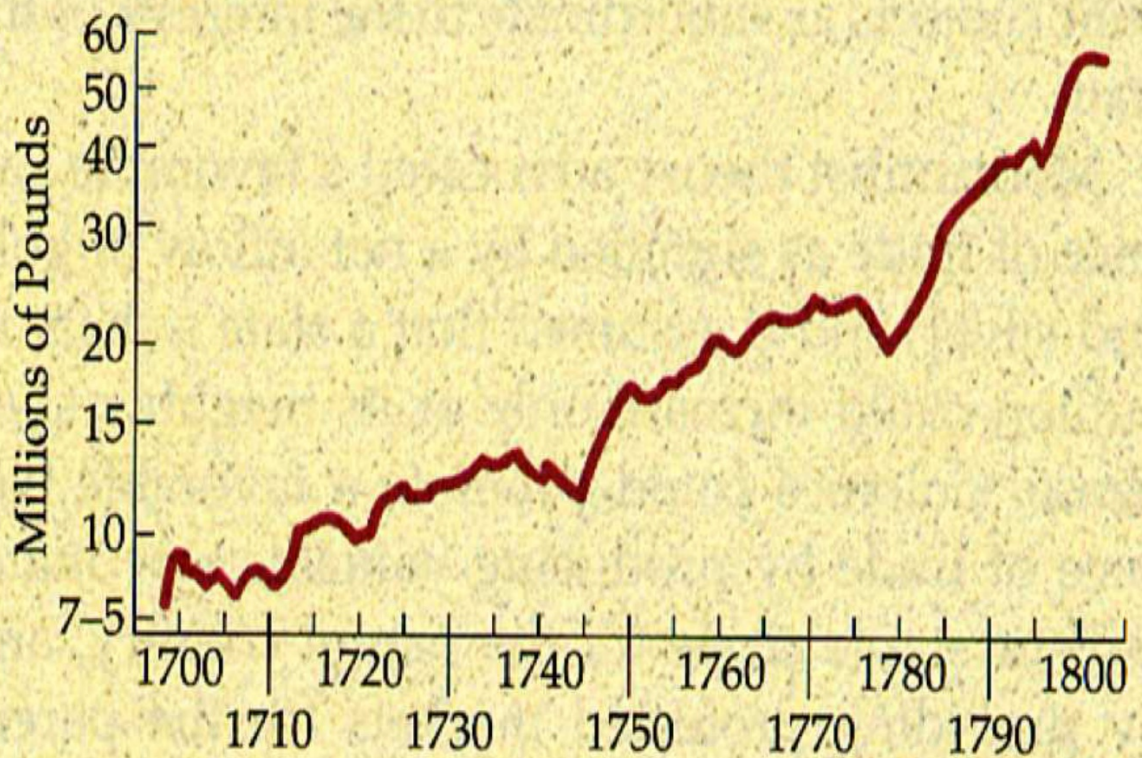
<b>1813</b>	2400 looms	150, 000 workers
<b>1833</b>	85, 000 looms	200, 000 workers
<b>1850</b>	224, 000 looms	>1 million workers

**Cotton Gin Increases The Amount Of Cotton  
That Can Be Readied For Cloth-Making,  
Thereby Increasing The Need For Cotton and  
Thereby African Slaves**

# Textile Factory Workers in England



## The Growth of England's Foreign Exports in the 18th Century



# Manufacturing Negatives

- **Poor Working Conditions**
  - No Ventilation
  - No Windows/ Little Light
  - Unclean Environment
  - No Safety Procedures
- **Long Hours/ Low Pay**
- **Children Supplied Much Of The Labor**





## Factory Wages in Lancashire, 1830

Age of Worker	Male Wages	Female Wages
under 11	2s 3d.	2s. 4d.
11 - 16	4s. 1d.	4s. 3d.
17 - 21	10s. 2d.	7s. 3d.
<b>22 - 26</b>	<b>17s. 2d.</b>	<b>8s. 5d.</b>
<b>27 - 31</b>	<b>20s. 4d.</b>	<b>8s. 7d.</b>
<b>32 - 36</b>	<b>22s. 8d.</b>	<b>8s. 9d.</b>
<b>37 - 41</b>	<b>21s. 7d.</b>	<b>9s. 8d.</b>
<b>42 - 46</b>	<b>20s. 3d.</b>	<b>9s. 3d.</b>
47 - 51	16s. 7d.	8s. 10d.
52 - 56	16s. 4d.	8s. 4d.
57 - 61	13s. 6d.	6s. 4d.

**Schilling Is Worth Roughly One Quarter**

# Problems of Pollution



*The Silent Highwayman - 1858 C.E.*

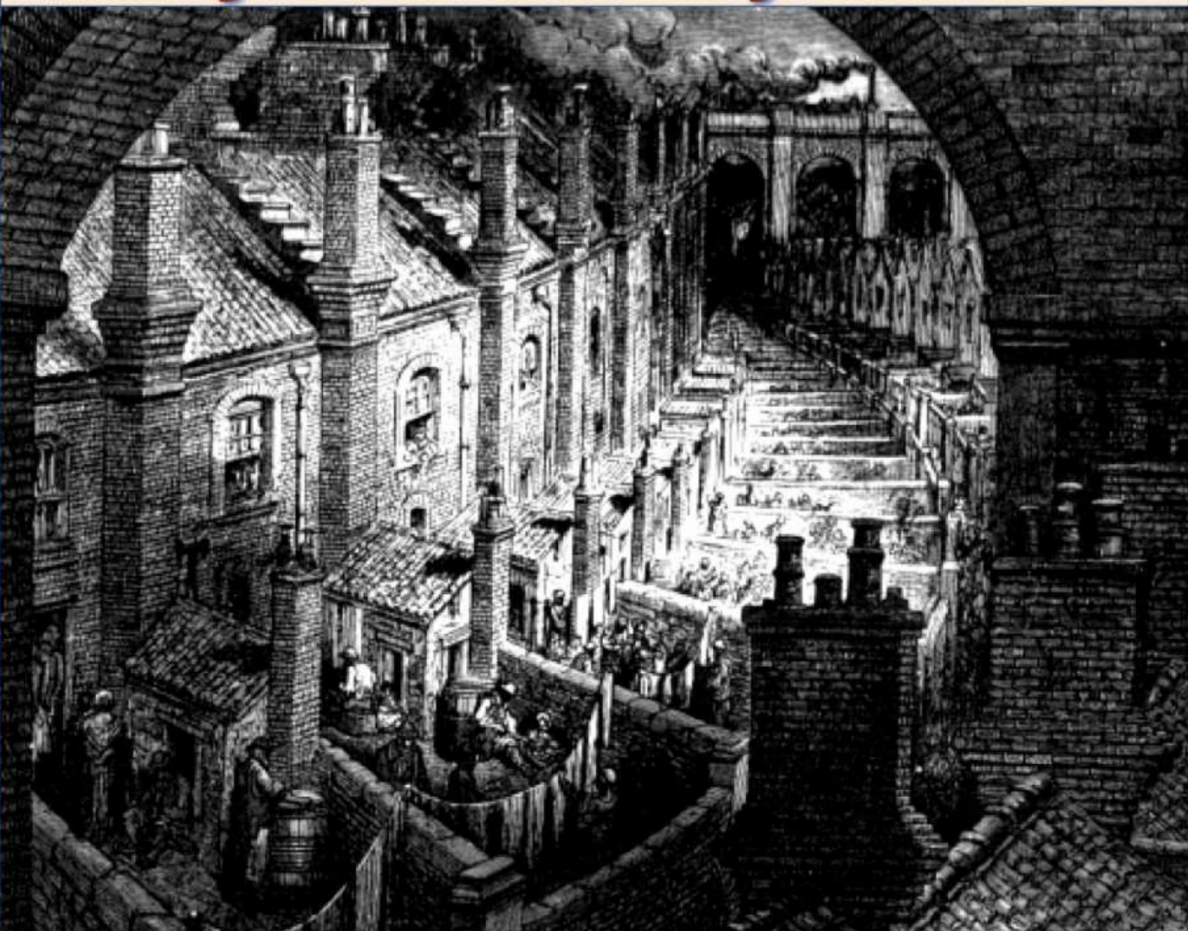
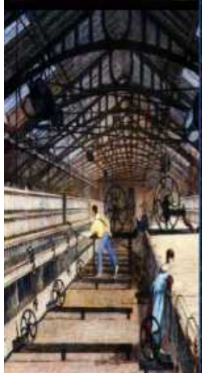
# Industrial Staffordshire



# The New Industrial City



# Early-19th Century London



# Worker Housing in





**Gin Lane**

**William  
Hogarth**

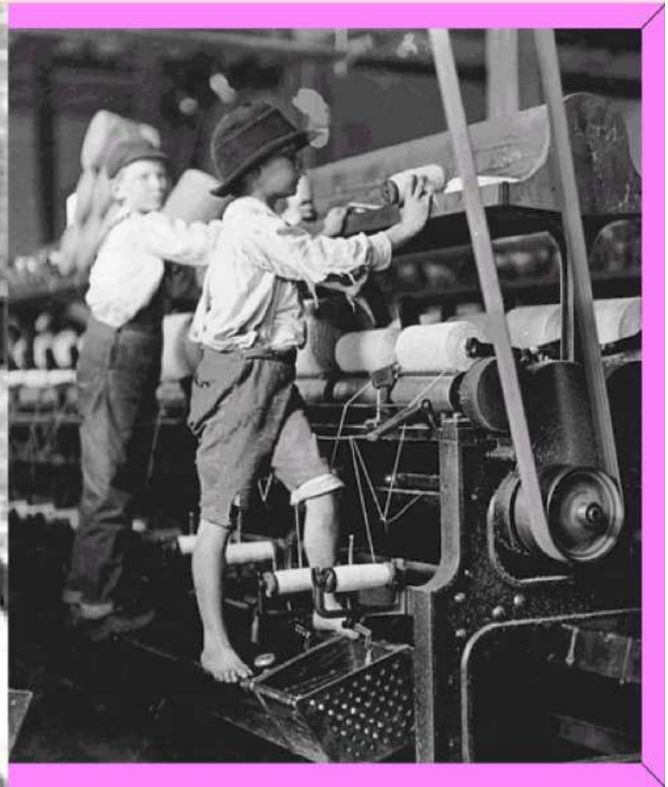
**1751 C.E.**

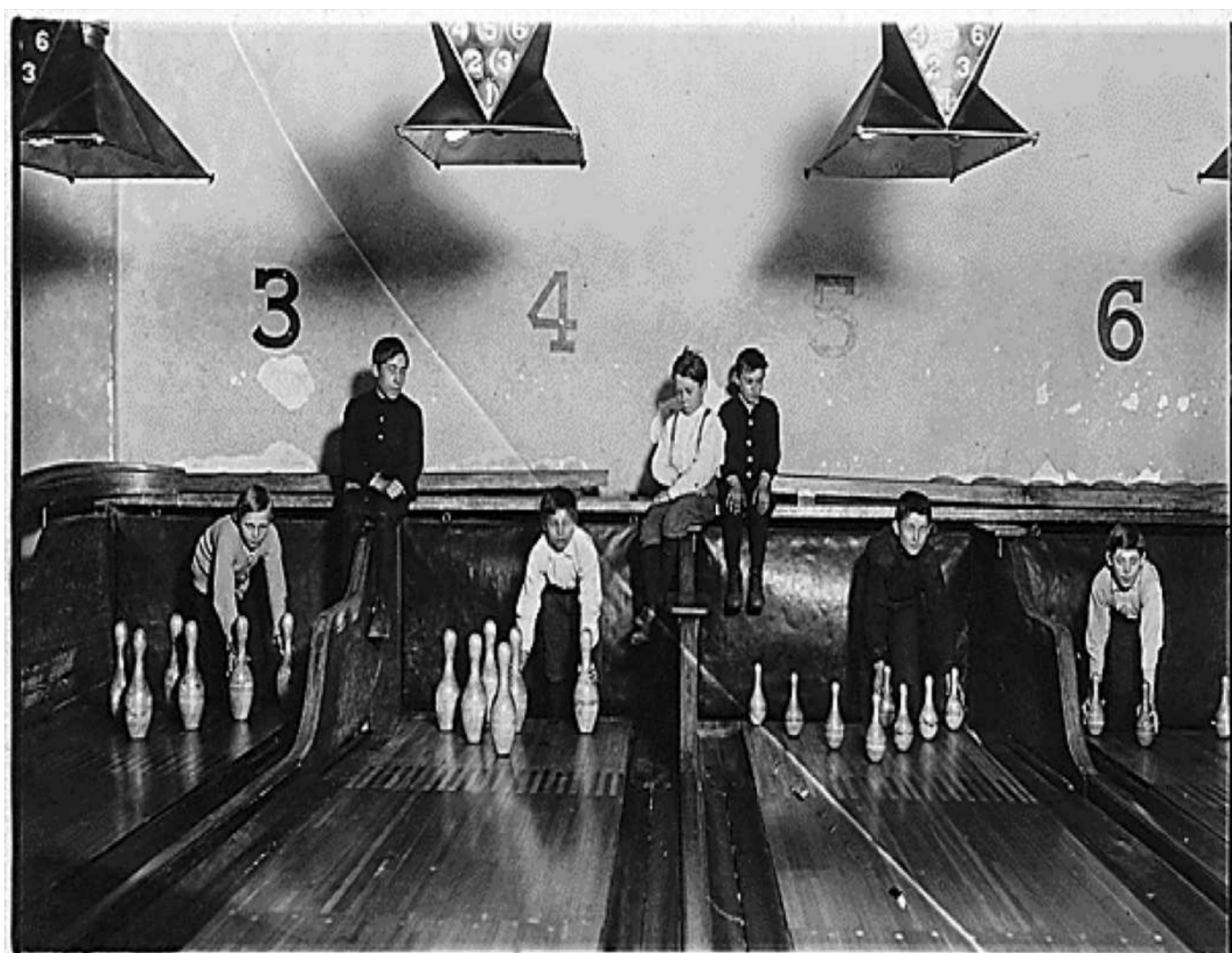
# Factory Workers at Home

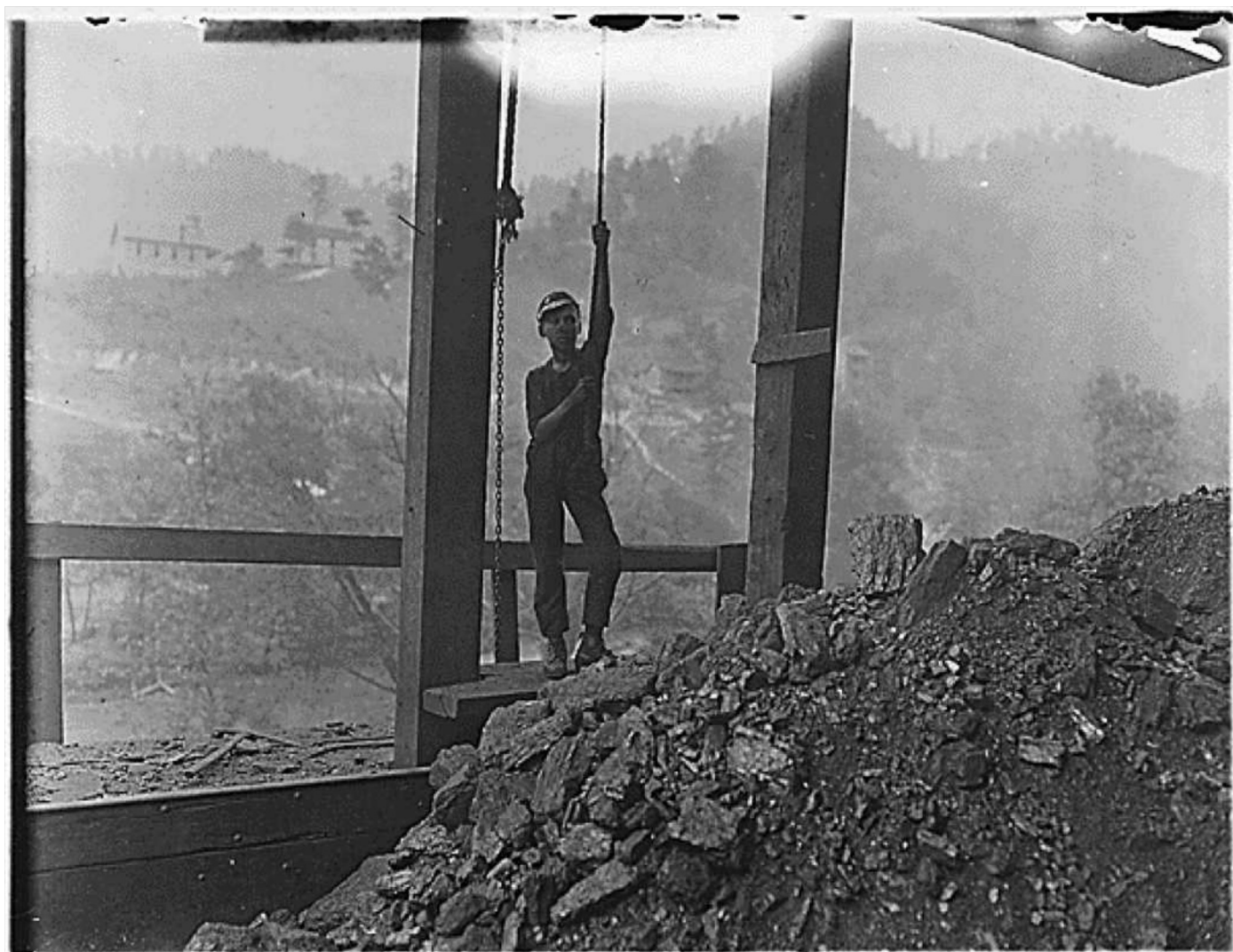


# Child Labor

**Many Children Were Put To Work ASAP.**

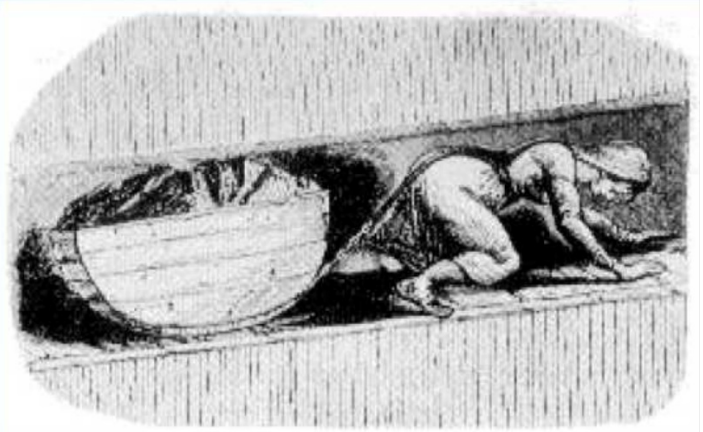
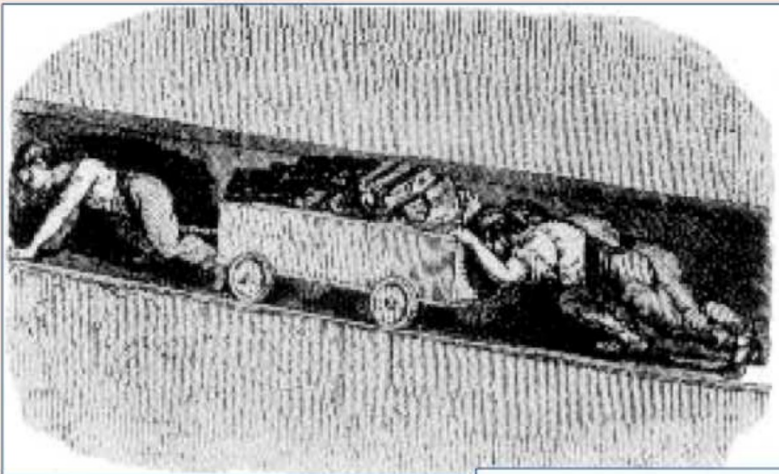






# Child Labor in the Mines

Child  
"Hurriers"





**Girls Were  
Preferred  
Over Boys.  
They Were  
Paid Less,  
Had Smaller  
Hands.**





# The "Haves": Bourgeois Life Thrived on the Luxuries of the Industrial Revolution

# 19<sup>c</sup> Bourgeoisie: The Industrial *Nouveau Riche*



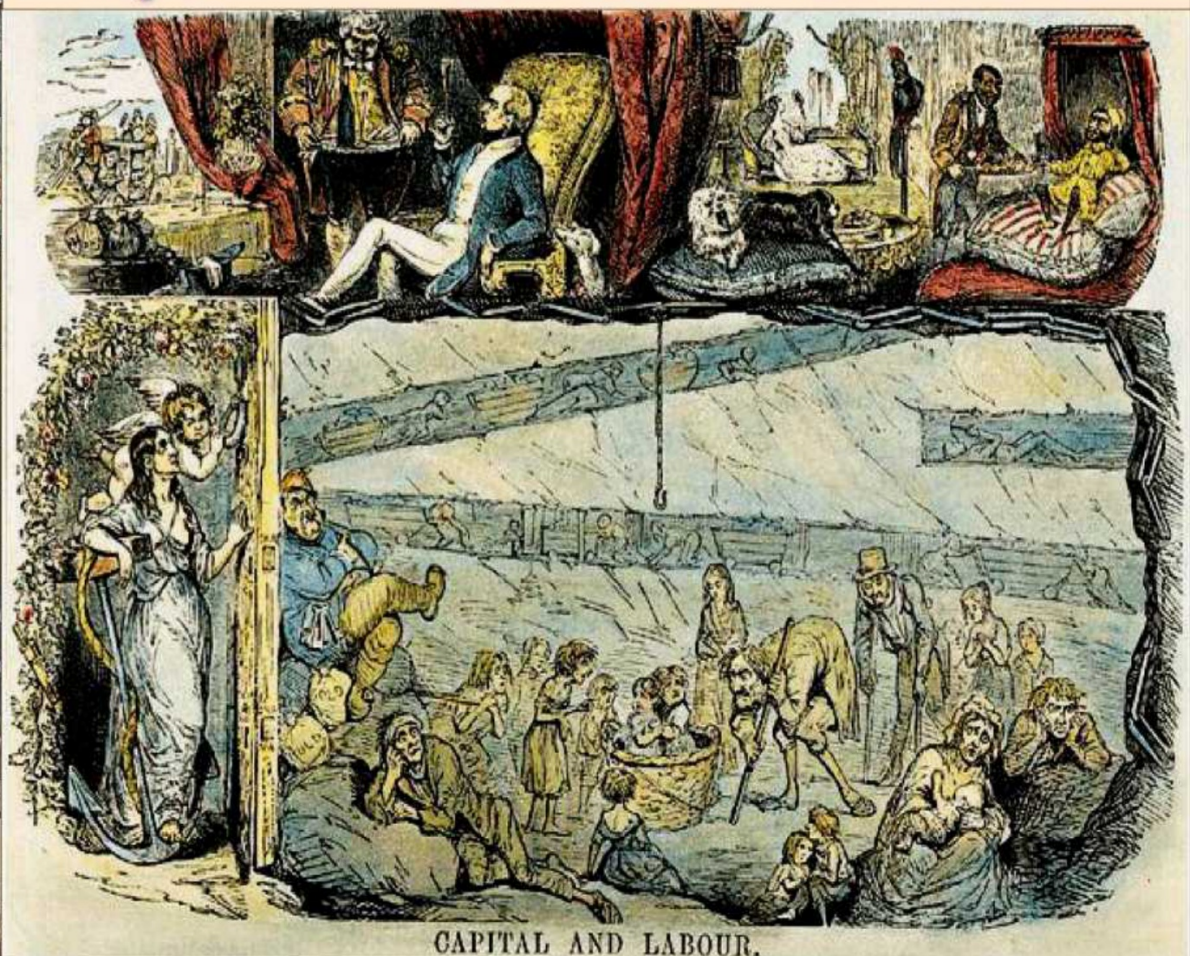
## Criticism of the New Bourgeoisie



## **Stereotype of the Factory Owner**



# **“Upstairs”/“Downstairs” Life**



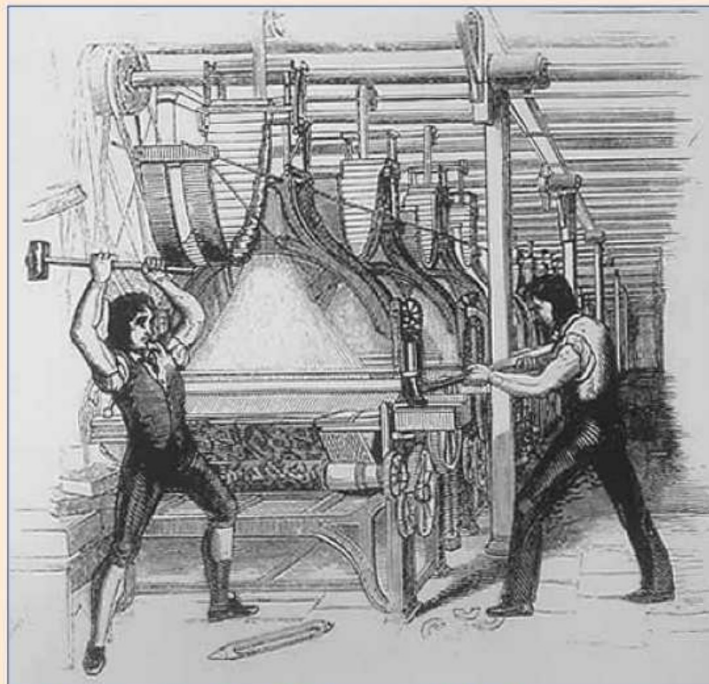


# Protesters



# The Luddites: 1811-1816 C.E.

Machines  
Took  
Their  
Jobs,  
They  
Hated  
Machines  
for This



Attacks On The "Frames" [Power Looms].

**Ned Ludd** [A Mythical Figure Supposed To  
Live in Sherwood Forest]

## *Germany Industrializes*

*"Read a Chunk"*

*pg. 732*

### *Essential Question:*

- 1. Why did Germany industrialize slower than Britain?*
- 2. What did Germany do to become an industrial and military giant by the 1800s?*

## *Meiji Reforms*

*Read on pg. 811*

*Essential Question:  
What steps did Japan  
take to modernize and  
industrialize?*



Emperor Meiji, proclaimed State Shinto 1868

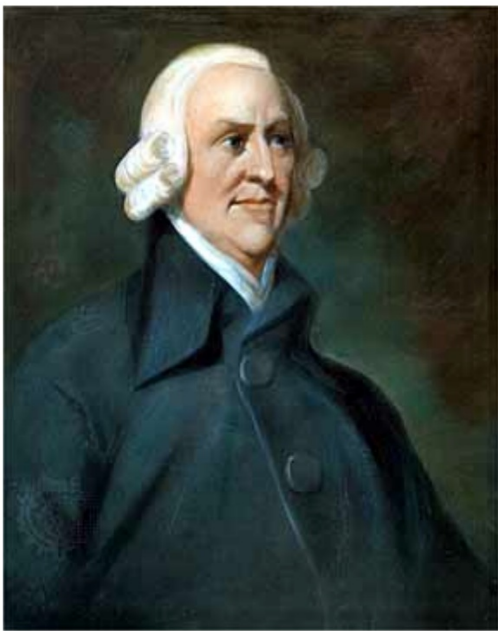
# New Ways of Thinking



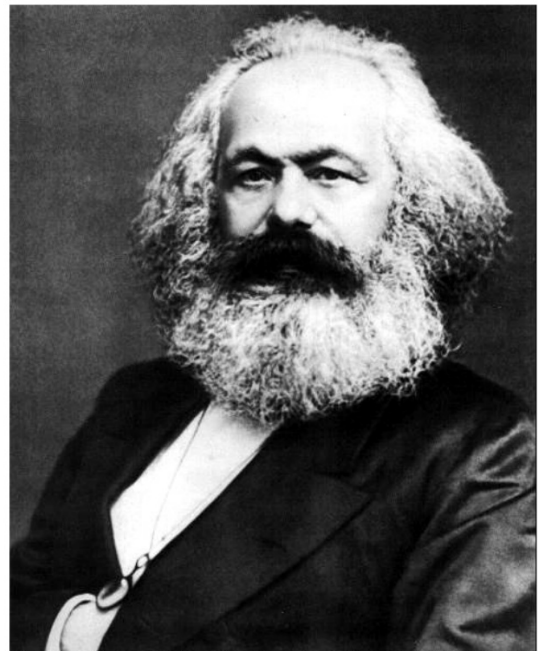
*Essential Question:*

*Who are these men? What were their beliefs?*

*Detail each using your activating words!*

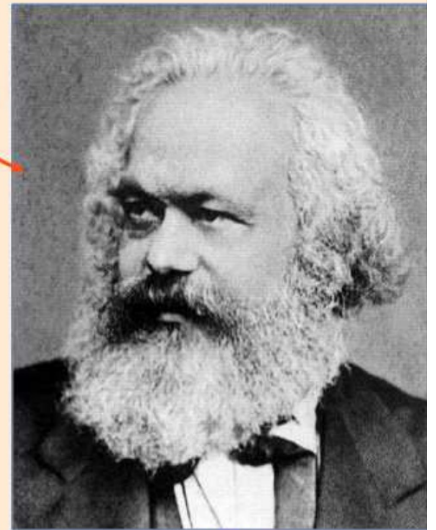
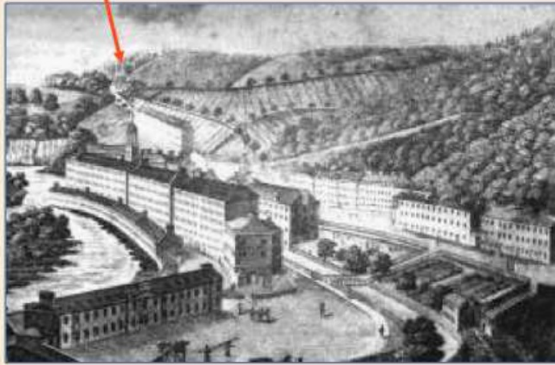


*Adam Smith*



*Karl Marx*

## The Socialists: Utopians & Marxists



- × People as a Society Would Operate and Own the Means of Production, Not Individuals.
- × Their Goal Was a Society That Benefited Everyone, Not Just a Rich, Well-Connected Few
- × Tried to Build Perfect Communities [Utopias].





# Improvements In Transportation

# The Impact of the Railroad



JOURNEY TIMES FROM LONDON (IN HOURS)

43	EDINBURGH	12 $\frac{1}{4}$
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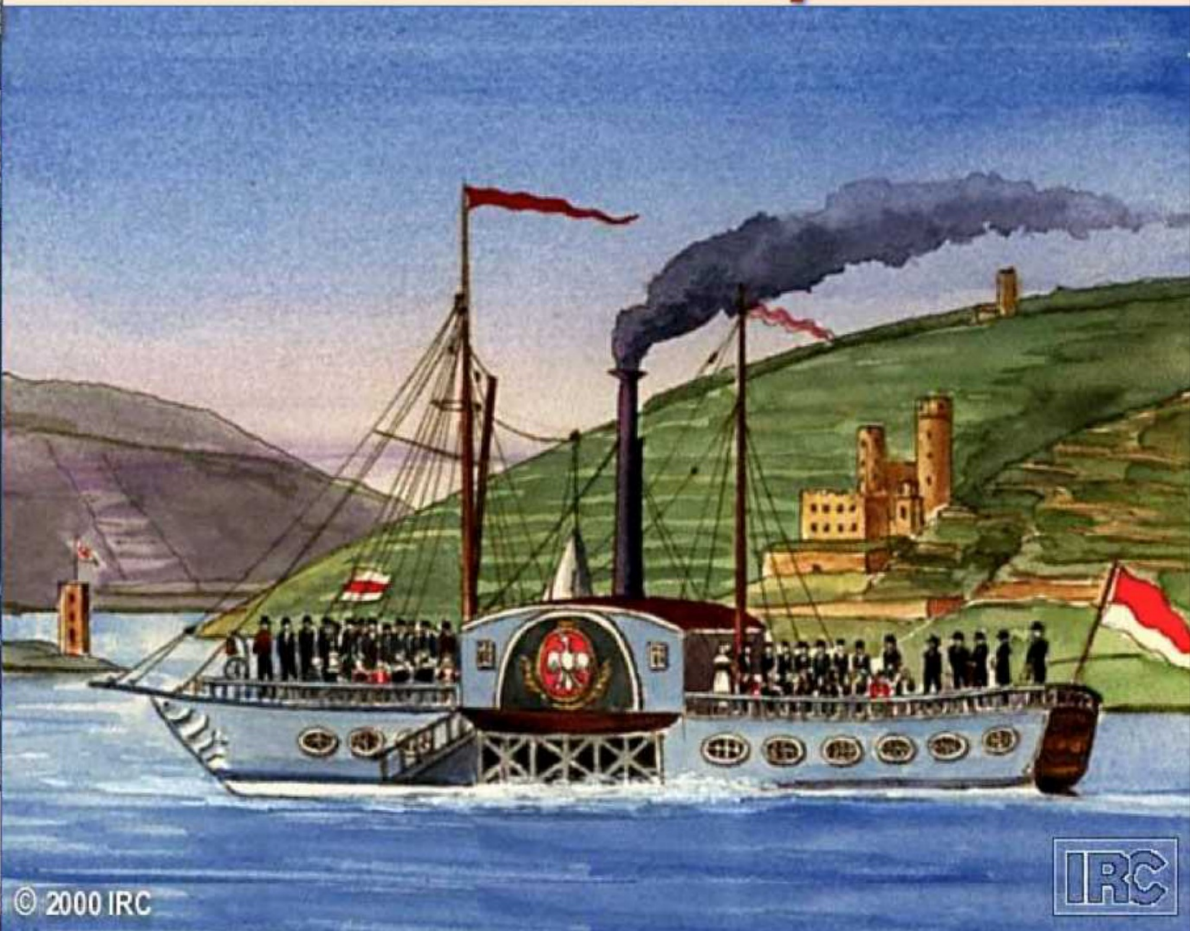
24	LIVERPOOL	6 $\frac{1}{2}$
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18	EXETER	4 $\frac{3}{4}$
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11	BIRMINGHAM	3
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6	BRIGHTON	1 $\frac{1}{4}$
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# Steam Ship



© 2000 IRC



# Early Canals



Britain's Earliest  
Transportation  
Infrastructure

# Suez Canal 1869 C.E.

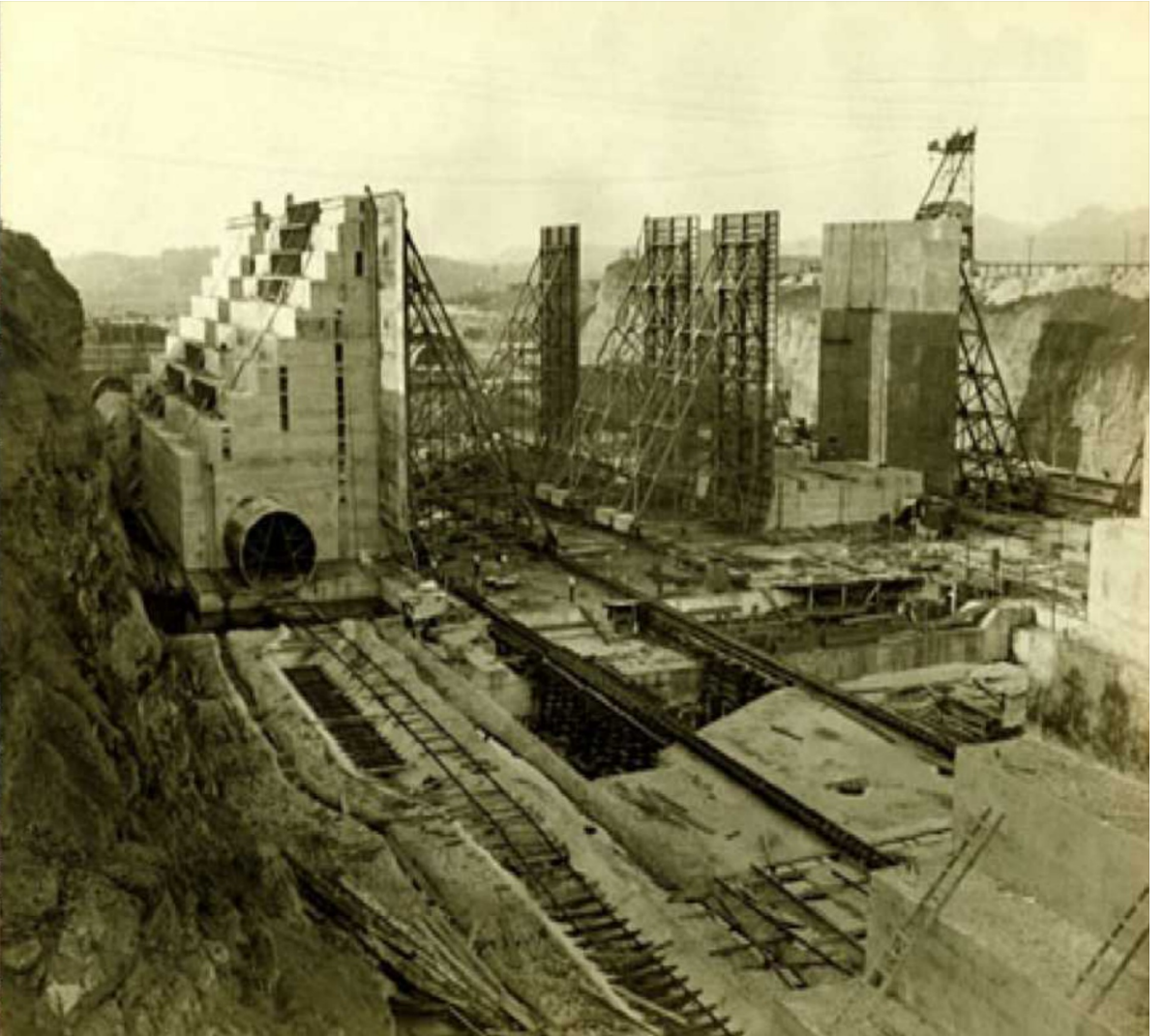


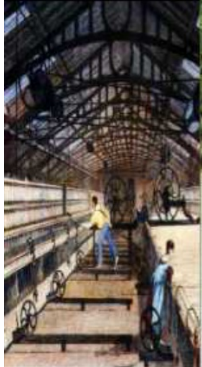


# Panama Canal

**The Panama Canal was a Shortcut  
from the Atlantic to the Pacific**









[www.miras.cz](http://www.miras.cz)





# New Techinques In Metallurgy Change The World



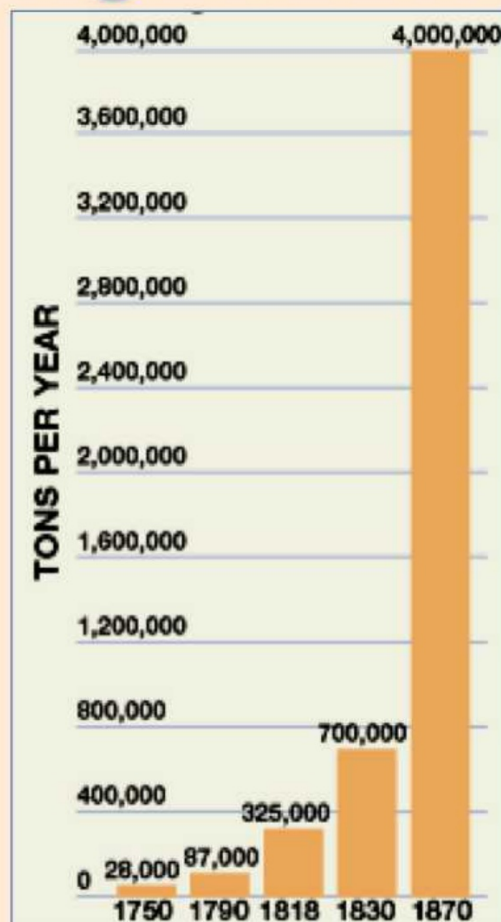
## Coal Mining in Britain: 1800-1914 C.E.

<b>1800</b>	1 ton of coal	50, 000 miners
<b>1850</b>	30 tons	200, 000 miners
<b>1880</b>	300 million tons	500, 000 miners
<b>1914</b>	250 million tons	1, 200, 000 miners

**Cheap, Easy Available Of Steel Allows For More  
Railroads and Eventually the Building of  
Skyscrapers**



# British Pig Iron Production





# Social Aspects

## Rapid Rise in Population

- **Hypothesis that Birth Rate Rose Because of Earlier Marriage**
  - (Mean Age of First Marriage Fell from 26 to 23 Years, Proportion of Women Never Marrying from 15% to 7.5%).
- **Average Life Expectancy at Birth Rose from 32.4 to 38.7 Years Between the 1680's and 1820's.**
- **Rising Fertility Contributed 2.5 Times More to Population Growth Than Did Mortality Improvement.**

# Effects of the Industrial Revolution

- **What Was The Industrial Revolution?**
  - **Machines Coordinated to Make Goods**
  - **Energy from Non-Animal Sources**
  - **Industry Grew 4 Times Faster**
- **Changed All Aspects of Society**
  - **Most Profound Effect Since Agriculture**
  - **Europe as World's Dominant Power**
  - **Transformed Social Classes**
  - **Higher Standard of Living for Most**



# Industrialization By 1850 C.E

